REPORT SX 82106N.

TITLE  Direct Fertilizer Treatment at the Time of Planting

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DIRECT FERTILIZER TREATMENT AT THE TIME OF PLANTING

FINAL REPORT

Objective

The objective of this trial is to examine the effects of a slow release fertilizer tablet at the time of planting.

Design and Layout

Four test sites were established in Spring 1982. Locations, species and stocktypes were as follows:

1. Beaverfoot River, Golden District - Spruce PSB 211
2. Sue Fire, Golden District - PI PSB 211
3. Copper Ridge, Kootenay Lake District - Spruce 2+0 BR
4. Kirkup Creek, Revelstoke District - spruce 2+0 BR

Trial sites at Kirkup Creek and Copper Ridge were terminated because of either errors in trial establishment or lack of continuous monitoring. No information will be provided for these two test sites in this report.

Design and Layout

Homogeneous test plots were established on operational plantations. At each site 1,000 trees were fertilized after planting with Agriform tree starter tablets containing approximately 1.8 g of nitrogen (9.0 g tablet, 22-8-2 formulation). Each tablet was placed in a dibble hole 5 to 10 cm deep at a distance of 5 to 10 cm from the seedling. One hundred fertilized trees in five lines were subsequently flagged for survival and growth measurements. Similarly 100 nonfertilized, control trees were also flagged and measured.
Measurements

Following establishment, assessments were done in the fall of 1982 and 1984. Survival and annual height growth were consistently recorded at each measurement and stem calipers were recorded in 1984.

Results

Because major gains in height growth are not expected with fertilizer until the second season of outplanting, no analysis was performed on the 1982 leader growth.

An unpaired t-test was performed to test significance for 1983/84 data. On both sites there were no significant differences in leader growth between the fertilized and nonfertilized trees, nor was there a significant difference in stem caliper between the two treatments (Table 1).

TABLE 1 - SX 82106

Survival and Growth Measurements (cm) - Fall 1984

<table>
<thead>
<tr>
<th></th>
<th>Sue Fire--P1 PSB211</th>
<th>Beaverfoot--Sp PSB 211</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fert. Seedlings</td>
<td>Nonfert. Seedlings</td>
</tr>
<tr>
<td>Leader Growth 1983</td>
<td>6.43</td>
<td>5.69</td>
</tr>
<tr>
<td>Leader Growth 1984</td>
<td>12.89</td>
<td>13.25</td>
</tr>
<tr>
<td>Stem Caliper 1984</td>
<td>0.62</td>
<td>0.62</td>
</tr>
<tr>
<td>% Survival 1984</td>
<td>76</td>
<td>86</td>
</tr>
</tbody>
</table>

*Significance was tested using an unpaired t-Test
Conclusions

Lack of a significant response to the fertilizer tablets is probably due to an inadequate amount of the nitrogen component; i.e., 1.8 g nitrogen per 9.0 g tablet.

Others trials¹,² indicate that if seedlings are fertilized with 5.4 g nitrogen per tree of slow release fertilizer, there will be significantly greater leader growth and stem calipers. All seedlings in these trials received 30 g of Osmocote 18-6-12 or 5.4 g of nitrogen per tree. Fertilizer was broadcast in a 10 cm radius around each seedling. To provide a comparable amount of nitrogen using the Agriform fertilizer tablets, three tablets would have to be planted around each seedling. More time would be required for this procedure compared to broadcast fertilization.

Trial Status

In view of insignificant growth results and the fertilizing methodology of Agriform this trial is terminated, but research on fertilization at the time of planting will continue using osmocote 18-6-12³.

¹EP 858.04 - spruce 313
²SX 82111 - lodgepole pine PSB 211
³SX 84115Q - Fertilizing Interior Spruce at the Time of Planting